

27. On the Triassic Stegocephalians, *Brachyops*, *Bothriceps*, and *Lydekkerina*, gen. nov. By Lieut. R. BROOM, M.D., D.Sc., C.M.Z.S., R.A.M.C.

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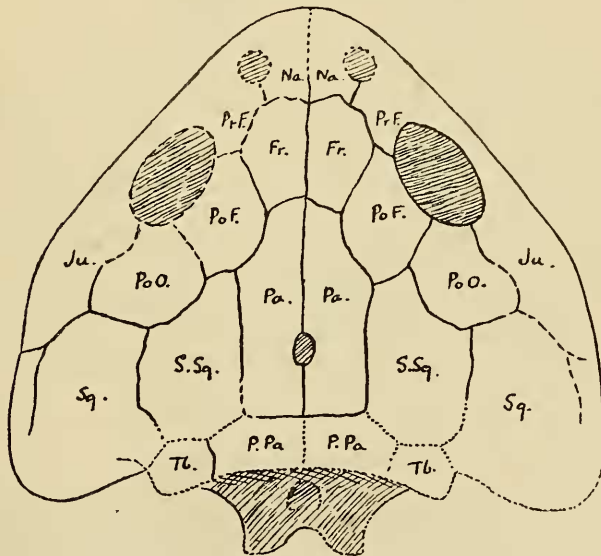
(Text-figures 1-3.)

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BRACHYOPS LATICEPS Owen. (Text-fig. 1.)

IN 1854 Owen described, under the name *Brachyops laticeps*, the skull of a small Stegocephalian from Mangali, Central India. Though the skull is fairly complete it is very badly weathered,

Text-figure 1.



Skull of *Brachyops laticeps*, about  $\frac{2}{3}$  nat. size.

*Fr.*, Frontal; *Ju.*, Jugal; *L.*, Lacrimal; *Mx.*, Maxilla; *Na.*, Nasal; *Pa.*, Parietal; *Pmx.*, Premaxilla; *PoF.*, Postfrontal; *PoO.*, Postorbital; *Pr.F.*, Prefrontal; *P.Pa.*, Postparietal; *Q.J.*, Quadratojugal; *Sq.*, Squamosal; *S.Sq.*, Supra-squamosal (Supratemporal); *Tb.*, Tabular.

and very little can be made out beyond the impression of the inner sides of the upper cranial bones. Very little remains of the elements in front of the orbit and practically nothing of the tabular and postparietal regions.

The parietals, which are clearly paired, are unusually large and have between them a large pineal foramen. The anterior end of the parietal is in front of the transverse plane through the postorbital margin.

The frontal is relatively small. The postfrontal and postorbital are of about equal size—each a little larger than the orbit. The jugal has a very well-developed portion lying between the orbit and the quadratojugal and squamosal, and here there has evidently been a moderate-sized boss.

The squamosal is large and the suprasquamosal only a little smaller. The tabular has evidently been small and the postparietals short antero-posteriorly.

The occipital region slopes back from the postparietals, and the exoccipital condyles are considerably behind the plane of the quadrates.

In the figure I have given, the sutures in line are those seen on the specimen; those in broken line are from those of the opposite side; those in dot are hypothetical.

#### BOTHRICEPS AUSTRALIS Huxley. (Text-fig. 2.)

In 1859 Huxley described a small Stegocephalian from Australia, under the name *Bothriceps australis*. Though smaller than *Brachyops laticeps* it is fairly closely allied to it. Huxley gives reasons sufficient to show that it is at least specifically distinct. The few reasons he gives for regarding it as generically distinct are less conclusive. *Brachyops* has a broader skull, and the eye is placed further forward and more laterally than in *Bothriceps*, but in the imperfect state of the specimens no characters of generic importance can be seen to separate the two forms. There may, however, be in association with the anterior portion of the orbit in *Brachyops*, some differences in relations of the lacrimal, or septo-maxillary, or of the sensory grooves, or in the structure of the palate, which may be sufficient to separate the types into distinct genera, and in the meantime *Bothriceps* may be retained as possibly distinct.

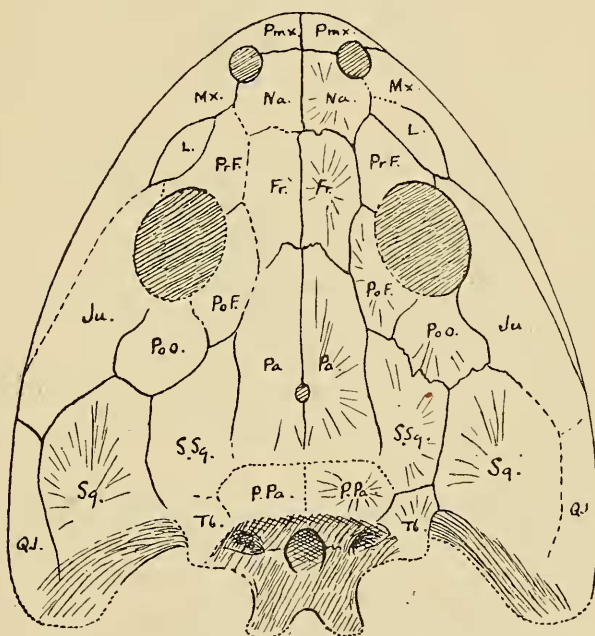
The figure given by Huxley shows the sutures as preserved in the specimen. The new figure I give represents a restoration of the skull. As, however, every element of the upper side of the skull is shown on one side or the other, there is no element in any doubt, and the only sutures concerning which there is any doubt are indicated in dotted line.

The following are some of the more interesting points in the structure of the skull. The lacrimal is small, and nearly extends from the orbit to the nostril, but does not reach the border of

either. The postfrontal is more than twice as long as broad. The jugal forms the lower margin of the orbit, but much the larger part of the bone is situated behind the orbit. The supra-squamosal is only about half the size of the squamosal.

The occiput slopes away from the postparietals as in *Brachyops*, but being much better preserved we can make out something of the structure in *Bothriceps*. The postparietal is well developed, and has a considerable part on the occipital aspect which articulates with the exoccipital. The tabular is smaller than the

Text-figure 2.

Skull of *Bothriceps australis*, about  $\frac{2}{3}$  nat. size.

For lettering see text-fig. 1.

postparietal, and if only the upper surface were seen might be regarded as forming a small posterior horn, but the exoccipitals extend much behind it, and inferiorly and internally it articulates with what is probably the paroccipital.

The parasphenoid is large and there are no teeth on it.

*Brachyops*, *Bothriceps*, and *Batrachosuchus* are allied genera forming a very distinct family which may be called the

Brachyopidae. It is interesting that one should be known only from India, one from Australia, and the third from South Africa.

LYDEKKERINA HUXLEYI (Lydekker), gen. nov. (Text-fig. 3.)

In 1890 Lydekker described a small Stegocephalian from the Orange Free State under the name *Bothriceps huxleyi*, believing the form to be allied to Huxley's *Bothriceps australis*. No later worker, so far as I am aware, has doubted the correctness of Lydekker's placing it in Huxley's genus. But as I hope to show that the South-African form differs very markedly from *Bothriceps*, and possibly even belongs to a different family, I propose to establish a new genus for it, which I have much pleasure in calling *Lydekkerina*, after Mr. R. Lydekker, who has so recently passed away, and whose work on South African fossil reptiles was extremely good.

The only known specimens of *Lydekkerina huxleyi* are four skulls, with some portions of the rest of the skeleton, in the British Museum, and a number of fairly good specimens in the Bloemfontein Museum; and all were obtained, I believe, from a locality near Edenburg, O.F.S.

The skull is about a half longer than broad. The orbits are moderately round and placed near the middle of the skull. The nostrils are large; and there is a very distinct otic notch bounded internally by a well-developed tabular.

The premaxillaries are fairly well developed and the maxillaries are long but very slender. The septo-maxillary, if developed as is probable, is entirely inside the nostril.

The nostril is large, and is separated from the maxilla by the lacrimal.

The lacrimal is very well developed, extending backwards from the nostril to near the orbit, and having on its inner side the nasal and prefrontal, and on its outer the maxilla and jugal.

The prefrontal is slightly larger than the lacrimal, and forms most of the anterior margin of the orbit.

The frontal is long and narrow. The prefrontal is also narrow, and of about the same length as the frontal. The postorbital is broad and slightly smaller than the prefrontal.

The jugal is long, and in the orbital region fairly wide. It lies above the maxilla, and along its upper border are the lacrimal, the prefrontal, the orbit, the postorbital, and the squamosal. Nearly as much of the jugal lies in front of the orbit as behind it.

The parietal is about as long as the frontal, but slightly broader. There is a small pineal foramen situated between the bones, and nearer to the anterior than to the posterior borders.

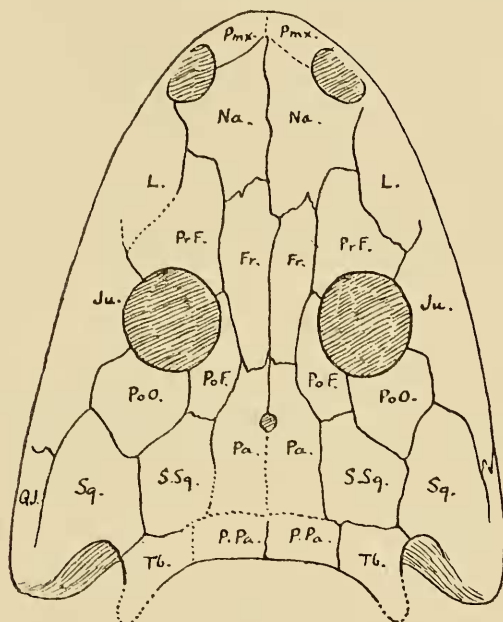
The suprasquamosal (supratemporal) lies on the outer side of the parietal. It is about the same size as the postorbital.

The squamosal is fairly large. It lies between the supra-squamosal and the quadratojugal, and passes downwards on the anterior wall of the otic notch to meet the pterygoid.

The quadratojugal is rather smaller than the squamosal.

The postparietal is a small quadrangular bone. On its outer side lies the tabular, which is produced backwards into what, when viewed from above, looks like a little posterior horn.

Text-figure 3.

Skull of *Lydekkerina huxleyi*, nat. size.

For lettering see text-fig. 1.

The occiput is not sufficiently well preserved in any of the specimens to show the sutures, but the general structure can be satisfactorily made out. It differs from that of both *Brachyops* and *Bothriceps* in having the condyles relatively small, and in their not extending back behind the plane of the upper part of the postparietals, so that they are not seen when the skull is viewed from above. There is a relatively large opening between the exoccipital and postparietal on the one hand, and the par-occipital and tabular on the other.

The palate differs from that of *Bothriceps* in having on the

parasphenoid, the prevomers, and the pterygoids, innumerable very minute teeth. In this it agrees with the large South African form *Rhinesuchus*.

The mandible, so far as can be seen in the specimens, agrees closely with that of *Trimerorhachis*. On the lower and outer sides can be seen a small splenial in front, with behind it a rather larger preangular, and behind this latter a large angular. The preangular has on its inner side relations to the prearticular and to what is probably the intercoronoid similar to those of *Trimerorhachis*. The structure of the jaw is best seen in the British Museum specimen R 506.